Claims

What is claimed is:

1. A method for translating a target logic block address (TLBA) value to a physical location value on a data storage disc of a disc drive, comprising steps of:

a) finding a target physical block address (TPBA) value corresponding to the TLBA value;

b) determining a track offset value of the TPBA value from a start of a zone on the disc containing a TPBA corresponding to the TPBA value;

c) computing a physical cylinder value and a head value from the track offset value;

d) determining a total skew value and a PBA (physical block address) offset value of the TPBA value; and

e) computing a physical sector value from the total skew value and the PBA offset value.

2. The method of claim 1, further comprising steps of:

f) finding a track start logical block address (TSLBA) value for the TLBA value; and

g) computing a logical sector value from the TSLBA value and the TLBA value.

3. The method of claim 1, wherein a defect list is maintained by the disc drive and the finding step a) comprises steps of:

a)(i) finding a defect list entry that provides a number of slips up to a TLBA corresponding to the TLBA value; and

a)(ii) adding the number of slips up to the TLBA to the TLBA value to find the TPBA value.

4. The method of claim 1, wherein the determining step b) comprises steps of:

b)(i) calculating a zone start PBA (ZSPBA) value; and

b)(ii) reducing the TPBA value by the ZSPBA value to find a number of PBAs from a ZSPBA corresponding to the ZSPBA value to the TPBA.

5. The method of claim 4, wherein the computing step c) comprises steps of:

c)(i) scaling the number of PBAs from the ZSPBA by a number of PBAs per track within a zone containing the TPBA; and

c)(ii) using an integer portion of a quotient determined in scaling step c)(i) as the track offset value.

6. The method of claim 5, wherein the computing step c) further comprises steps of:

c)(iii) scaling the track offset value by a number of heads; and

c)(iv) using an integer portion of a quotient determined in scaling step c)(iii) as the physical cylinder value.

7. The method of claim 6, wherein the computing step c) further comprises steps of:

c)(v) using a remainder of scaling step c)(iii) as the physical head value.

8. The method of claim 5, wherein the determining step d) comprises a step d)(i) of using a remainder of scaling step c)(i) as the PBA offset.

9. The method of claim 1, wherein the determining step d) comprises steps of:

d)(ii) finding a first skew value including all skew up to a zone containing the TPBA;

d)(iii) finding a second skew value including all skew within the zone containing the TPBA; and

d)(iv) moduloing a sum of the first skew value and the second skew value by the number of PBAs per track to find the total skew value.

10. The method of claim 9, wherein the computing step e) comprises a step (e)(i) of summing the total skew value and the PBA offset to find the physical sector value.

11. The method of claim 1, further comprising a step h) of computing a logical end of the track (LEOT) containing the TLBA by finding a number of slips on the track and deducting the number of slips on the track from the number of PBAs on the track.

12. A disc drive that translates a TLBA value to a physical location value on a data storage disc, comprising:

an interface for receiving a command from a host computer;

a processor configured to find a TPBA for the command, determine a track offset value of the TPBA value from a start of a zone on the disc containing a TPBA corresponding to the TPBA value, compute a physical cylinder value and a head value from the track offset value, find a TSLBA value for the TPBA value, and compute a logical sector value from the TSLBA value and the TLBA value.

13. The disc drive of claim 12, wherein the processor is further configured to determine a total skew value and a PBA offset value of the TPBA value, and compute a physical sector value from the total skew value and the PBA offset value.

14. The disc drive of claim 13, wherein the processor is further configured to determine a total skew value by finding a first skew value including all skew up to a zone containing the TPBA, find a second skew value including all skew within the zone containing the TPBA, and modulo a sum of the first skew value and the second skew value by the number of PBAs per track to find the total skew value.

15. The disc drive of claim 14, wherein the processor is further configured to find the physical sector value by summing the total skew value and the PBA offset.

16. The disc drive of claim 12, wherein the disc drive further comprises a memory containing a defect list, and wherein the processor is further configured to find the TPBA by finding a defect list entry that provides a number of slips up to a TLBA corresponding to a TLBA value contained in the command and adding the number of slips up to the TLBA to the TLBA value to find the TPBA value.

17. The disc drive of claim 12, wherein the processor is further configured to determine a number of PBAs from a ZSPBA to the TPBA by calculating a ZSPBA value corresponding to the ZSPBA and reducing the TPBA value by the ZSPBA value.

18. The disc drive of claim 17, wherein the processor is further configured to scale the number of PBAs from the ZSPBA by a number of PBAs per track within a zone containing the TPBA and use an integer portion of a quotient resulting from the scaling as the track offset value.

19. The disc drive of claim 18, wherein the processor is further configured to scale the track offset value by a number of heads, use an integer portion of a quotient of the scaled track offset as the physical cylinder value, and use a remainder of the scaled track offset as the physical head value.

20. A disc drive that stores information on a data storage disc having physical locations, comprising:

an interface that receives a command; and

a processing means for converting a logical location value from the command to a physical location value.